



Underground News

Providing Information to the Water Well, Underground Injection Control (UIC) & Underground Hydrocarbon Storage (UHS) Industries in Kansas and other Partners Interested in these Operations, the Environment, Water Resources and Energy .

Fall 2019

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KDHE Hosts Geology & Well Technology Tech Fair on October 8-9 in Wichita



On October 8-9 in Wichita, Kansas, the KDHE, Geology Section hosted the 2019 Geology & Well Technology Seminar/Tech Fair.

During the fair, presenters spoke on various topics including Arbuckle/Seismic, Division of Water Resources Temporary Permits, Well Workovers, Types of Fishing Tools, Water Well Maintenance, Water Well Awareness, History of Divining in Kansas, Solar Farms, Pond Liner System Design, Field and Laboratory Core Testing for Cavern Storage, Equus Beds Recharge Project and Water Issues at the Quivira National Wildlife Refuge.

Speakers

- ◆ Shelby Peterie, Kansas Geological Survey
- ◆ Charlotte Philip, Division of Water Resources
- ◆ David Zook, Strata
- ◆ Jerry Steffan, Kansas Fishing Tools
- ◆ Michael Schneiders, Water Systems
- ◆ Engineering, Inc.
- ◆ Kurt Rottmann
- ◆ Rachel Marlett, KDHE
- ◆ Robert Metzker, Groundwater Development Company
- ◆ Corey Linville, Sunflower
- ◆ Chris New, GHD

- ◆ Sam Voegeli, Respec
- ◆ Shawn Maloney, City of Wichita
- ◆ Rex Buchanan, Kansas Geological Survey

http://www.kdheks.gov/geo/download/Seminar_Presentations.pdf

Sponsors - Cash and/or Door Prizes

- ◆ Strata
- ◆ Lonquist
- ◆ T&C Consulting Services
- ◆ Empire Wireline
- ◆ Sonic Surveys
- ◆ Sargent Irrigation
- ◆ GSI Engineering



Baker Hughes



Burns & McDonnell



DataCan



Division of Water Resources



Eli Wireline Service



Empire



Geoprobe



GHD



GSI



K-State Pollution Prevention Institute



Lonquist



Socon Sonar Well Services



Sonic Surveys



Strata



T&C Consulting Services



UCS (Underground Cavern Stabilization)



Valve & Wellhead Specialists

THERE WERE 20 REGISTERED VENDORS PRESENT FROM COLORADO, KANSAS, LOUISIANA, MISSOURI, NEBRASKA AND TEXAS.

thank you

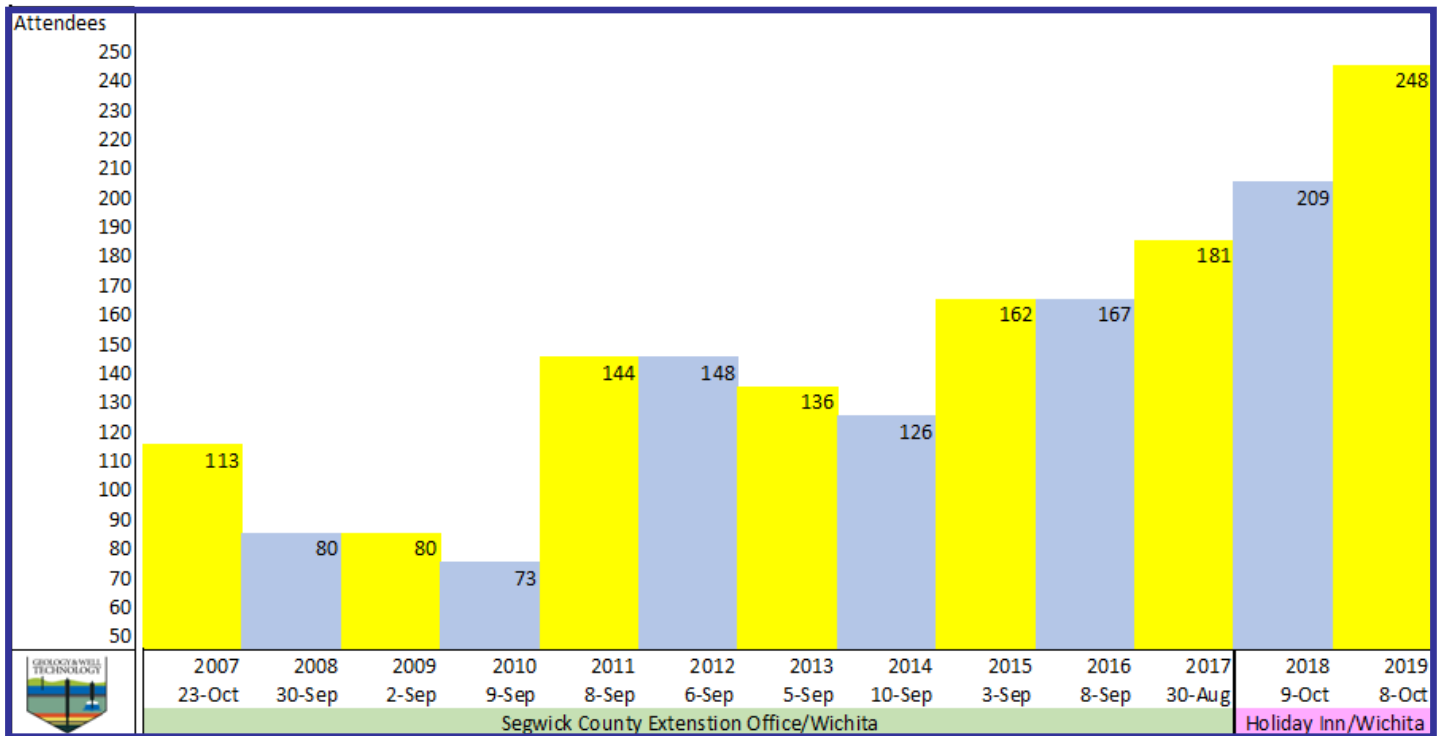
THERE WERE 248 REGISTERED ATTENDEES RESULTING IN THE GEOLOGY & WELL TECHNOLOGY 2019 SEMINAR/TECH FAIR BEING OUR LARGEST EVENT TO DATE.



Growth Facts on the Geology & Well Technology Seminar Years 2007, 2018 and 2019 Included Vendors

By Deb Biester

Mike Cochran, former Geology & Well Technology Section Chief stated that in 2000, and prior years, KDHE would get together with the Class I facilities and have meetings which consisted of about 15 people. It was then decided to invite other facilities and offer a variety of speakers and call our event a seminar. When Deb Biester joined KDHE in 2000, she remembers organizing these events at the Sedgwick County Extension Office with about 35 people in attendance. The following years it started to grow to 50, 60, 75, 80 on up. People enjoyed our seminars and said they were very interesting and informative, so we just kept going. In 2017, we reached 181 attendees and out grew the extension office and starting looking for a new venue. During the years of 2018 and 2019, we held our Seminar/Tech Fair (with vendors) at the Holiday Inn Wichita East I-35 in Wichita, Kansas.



In 2019, we packed the classroom full, the vendor room full, and had a drill rig outside to look at. You could actually feel the excitement in the air. Strata provided an outdoor Social Hour and it was wonderful. 2019 was our biggest seminar to date and we have people asking us to continue holding our event and inviting vendors. KDHE is constantly striving to make each year better than the last and seems to be paying off. We look forward to making 2020 even bigger and better. We look forward to seeing you all in the fall.

Changing faces at the Bureau of Water and Geology and Well Technology

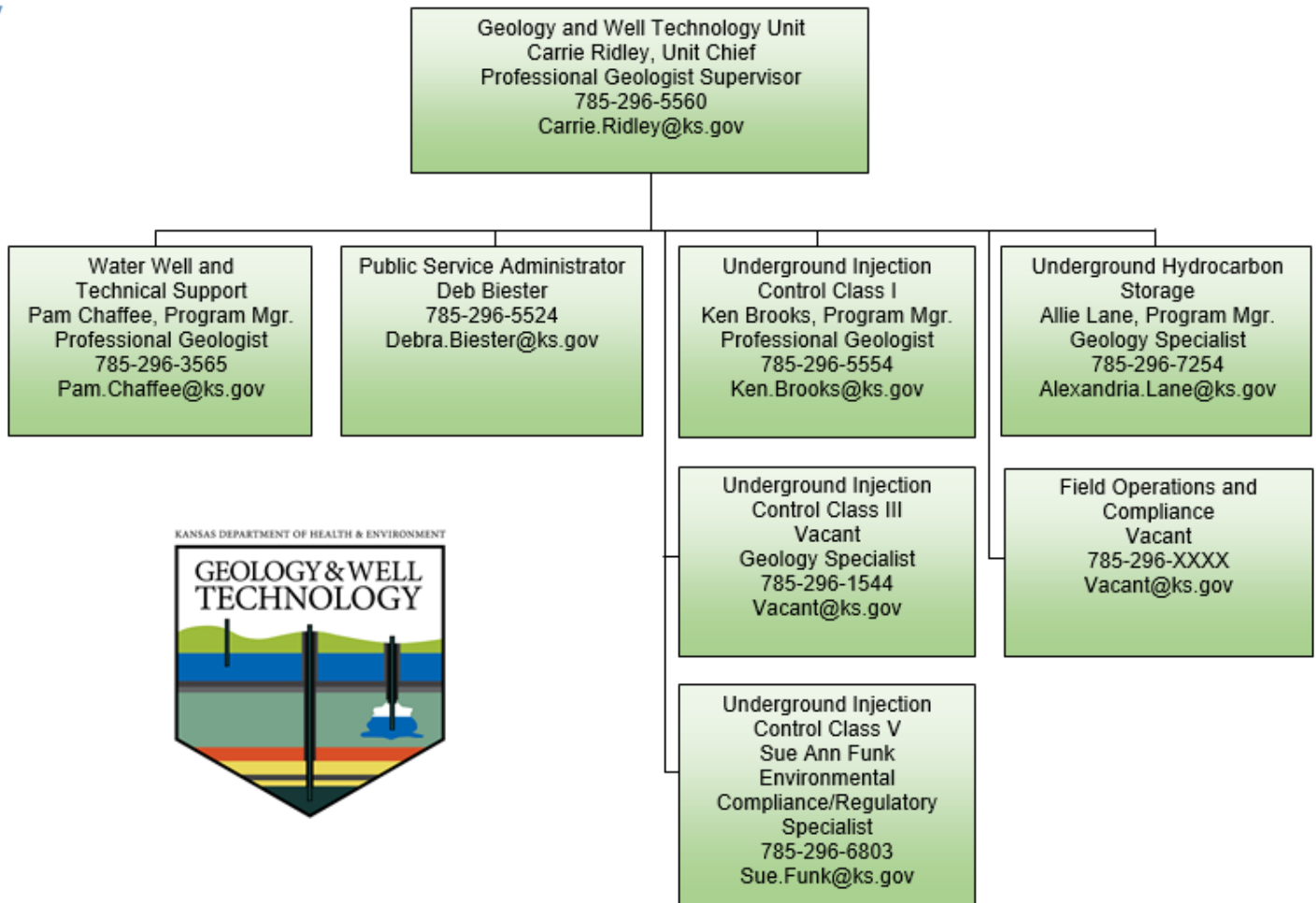
By Carrie Ridley, PG, Unit Chief

In the Spring we said good bye to Jaime Gaggero and Mike Cochran as Mike moved on to retirement after 42 years of state service and Jaime to EPA Region 7. Since then new faces have assumed those roles and more people have come on board. Tom Stiles was appointed Director of the Bureau of Water in May 2019. Tom has been part of the Bureau for over 20 years, and over 35 years of experience managing water programs for the State. He has worked for both KDHE and the Kansas Water Office in multiple roles where he is now overseeing Public Water Supply, NPDES permitting, TMDL, water quality standards, UIC and other Geology programs within the Bureau. Tom is also serves on multiple national boards and committees.

Also, in May 2019 Carrie Ridley took over leadership of the Geology and Well Technology group. Carrie has nearly 20 years of experience working in Geotechnical Engineering and Environmental Program Management. Carrie is a Licensed Geologist and holds her Masters of Geology from Kansas State University.

Since the last newsletter we have expanded Sue Funk's role to provide oversight of UIC Class V authorizations and help KDHE have an improved grasp on the inventory list of Class V "by-rule" authorizations. Within the last few weeks we have welcomed Ken Brooks aboard, Ken is returning to KDHE after his original retirement from the agency in 2003, when he was the first North Central District Environmental Administrator. Ken will be leading the UIC team, with Class I UIC wells as his primary responsibility.

Geology & Well Technology Staff Changes October 28, 2019



Welcome Ken Brooks, Professional Geologist UIC Program Class I Program Manager

Hi. My name is Ken Brooks, I am excited to join the Bureau of Water as the new UIC Program Class I Program Manager in the Geology and Well Technology Unit. I am a Licensed Professional Geologist and have over 40 years of experience in the public and private sector. I retired from the San Antonio Water System (SAWS) in January 2018 where I had spent 15 years working in water resource exploration and development. Prior to that I worked for 11 years for KDHE as District Environmental Administrator for Northwest District in Hays.

Before my first stint with KDHE I had worked in the oil and gas industry for Exxon and Sohio Petroleum, where I was involved with generating drillable prospects for exploration and production on the Gulf Coast, Offshore California and Rocky Mountains. When the domestic oil industry collapsed in the late 1980s I transitioned into environmental geology where I worked in the Shawnee Mission area for Woodward-Clyde Consultants in the Superfund Program and then Deffenbaugh Industries as their Manager of Geological Services. Deffenbaugh is where I was introduced to the UIC Class I permitting process and was responsible for successfully permitting their first disposal well. I earned my B.S. in Geology from the University of Kansas. I received a research assistantship from the University of Wyoming and earned my M.S. in Geology from there.

I grew up in the Shawnee Mission area but have had the opportunity to live in many places around the country. I live with my wife in the College Hill area of Topeka and have two daughters, one married in Kansas with young children and the other who remained in Texas when my wife and I moved back to Kansas after I retired from SAWS. I have spent the past 18 months doing major renovations on our house, so I am excited to return to the workforce and look forward working with the great people at KDHE.

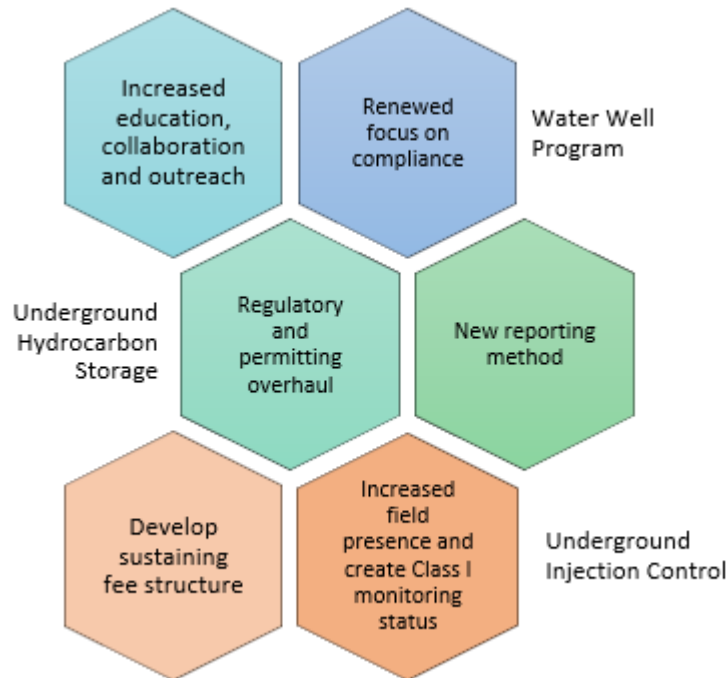
Welcome Sue Ann Funk UIC Program Class 5 Program Manager

Greetings! My name is Sue Funk, and I am enjoying being a part of the Geology and Well Technology Unit. I started a little over a year ago, and recently was promoted to the Underground Injection Control (UIC) Class V Program Manager. In that role, I will be updating the inventory of Class V wells and serve as a point of contact to provide information about Class V. I also help in the development of the Kansas On-Line Automated Reporting (KOLAR) for the UIC and the Underground Hydrocarbon Storage (UHS) programs.

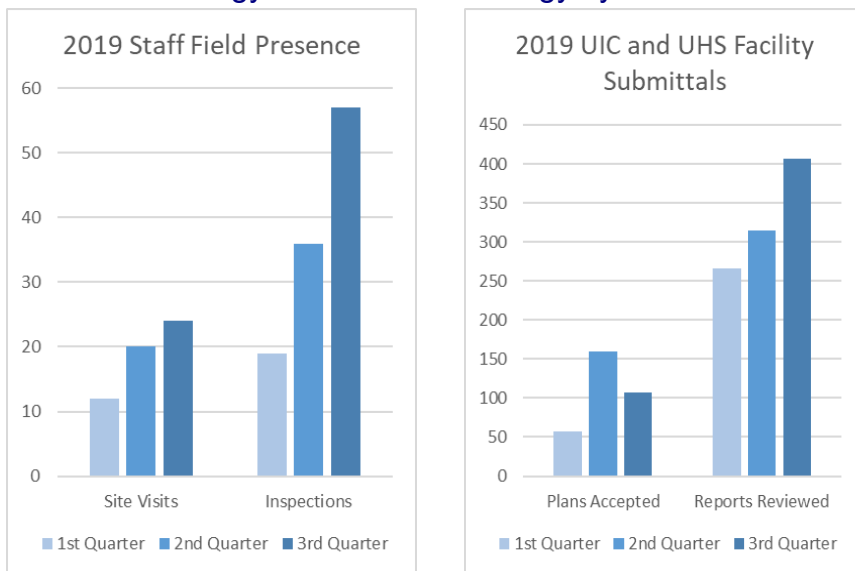
Throughout my career, I have been involved with Environmental Education and most recently worked as the Education and Outreach Coordinator for the Douglas County Conservation District. My formal education is in Horticulture, with a bachelor's degree in Horticulture from K-State and a master's degree in Urban Horticulture from the University of Washington in Seattle. My husband and I enjoy visiting our daughters, one who is a first year science teacher in the Blue Valley School District in Kansas City and the other one who is a band director in the Dallas area. We also enjoy traveling and spent a week in September in Sedona and at the Grand Canyon.

2020 Priorities for Geology and Well Technology

By Carrie Ridley, PG, Unit Chief



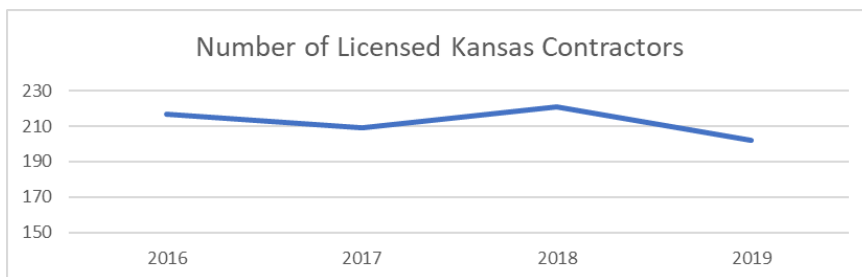
Geology and Well Technology by the numbers



While we are small, we are mighty. Staff has been very responsive to our stakeholders needs and work to get plans reviewed and accepted so operations can continue without regulatory delays.

Geology and well technology staff have made a concerted effort to increase their field presence. Increased visibility in the field has led to increased awareness of compliance issues, this helps everyone avoid enforcement actions as we work hard with our operators to return to compliance prior to issuing any type of enforcement.

Currently KDHE has 202 Water Well Contractors licensed for the 2019-2020 season. This appears to be declining with older members of the trade retiring. As the water well program looks to improve compliance, if any of our stakeholders are aware of ongoing regulatory issues or people drilling without a license please reach out to KDHE so we may investigate.



UIC staff attend Annual Groundwater Protection Council Meeting in Oklahoma City

By Carrie Ridley, PG, Unit Chief

In mid-September three UIC staff attended the Annual Groundwater Protection Council (GWPC) Forum in Oklahoma City. Staff members participated in the Mechanical Integrity Workshop geared toward regulatory technical staff which focused on several logging techniques, inspection tools for evaluation and remedial technologies. A second workshop reviewed groundwater and surface water interactions, a staff member was also in attendance for this half day workshop.

The Annual Forum had a significant number of sessions dedicated to groundwater and aquifer management and source water protection. We came back with several new ideas for outreach and shared those with our Watershed Management Section.

Class VI was of interest due to Federal Tax Credits available for different types of CO2 Sequestration. KDHE also sat in on a panel discussion for the Regional Induced Seismicity Collaborative (RISC) Workshop and learned about new interstate earthquake mapping tools that we are working with KCC to acquire for interagency use.

Kansas was well represented with several KCC employees in attendance as well as several Kansas based Operators and Consultants. The Annual Forum is an excellent meeting for our staff to attend, meet other UIC regulators from across the country and share ideas and experiences.

Let Science Dictate Policy

By Allie Lane



In September, the Geology and Well Technology Unit (GWTU) was invited to visit the RESPEC Rock Mechanics Lab in Rapid City, South Dakota.

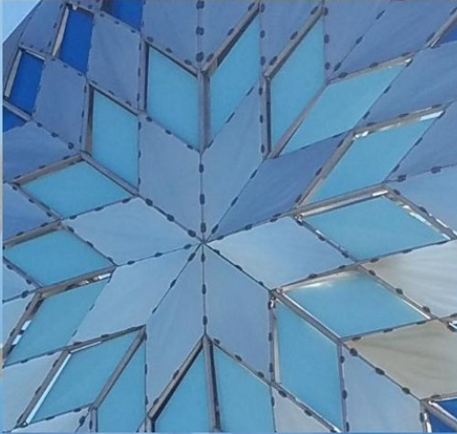
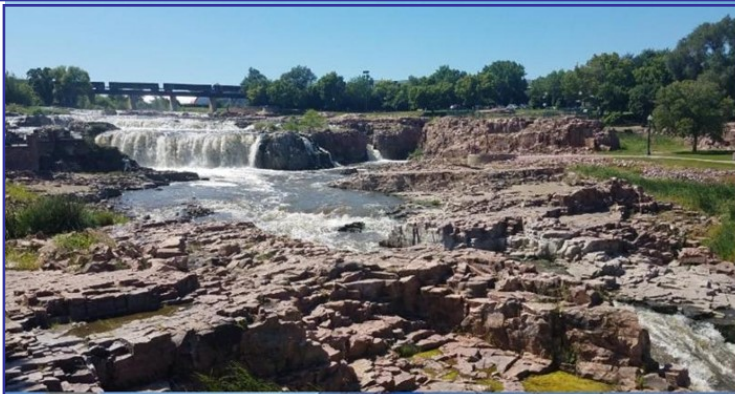
The Underground Hydrocarbon Storage (UHS) Program regulates the storage of liquefied petroleum gas (LPG) and liquid hydrocarbons in caverns developed in the Hutchinson Salt Member. Current UHS Regulations (K.A.R. 28-45) were developed in 2003 and limit storage cavern dimensions for maximum diameter, web thickness, and minimum salt roof.

Due to the aging cavern infrastructure, many UHS operators want to continue storage operations for caverns past the current regulatory dimensions. Many times, operators will request a variance, using a geomechanical study as justification. Salt core is collected near the facility and sent to the RESPEC Rock Mechanics Lab for geomechanical analysis to evaluate structural

stability and hydraulic integrity beyond regulatory dimensions. Evaluations include 3-D geomechanical modeling of site stratigraphy, numerical modeling of deformation and creep, and an analysis of cavern operations and future projections.

Our unit was able to meet with RESPEC staff and UHS operators to discuss current and future plans. We were able to see the precision and time that goes into salt core testing and geomechanical modeling. We also discussed some technical aspects of the regulations; we are currently revising UHS regulations to allow for added flexibility with storage cavern dimensions based on geomechanical studies. For the future of the GWTU and the UHS program, science will truly dictate policy.

A gigantic thank you to RESPEC and Sam Voegeli for inviting us to visit and for continually providing technical assistance.



These pictures were taken while on KDHE's trip to Respec in Rapid City, South Dakota



Class V Update

By Sue Funk

The Underground Injection Control (UIC) program is divided into six different classes. The Class V wells are typically shallow waste disposal wells used to release fluids underground. These wells generally inject either directly into underground sources of drinking water or into the shallow subsurface that overlies those resources. Class V wells have a variety of designs and uses, and include such things as large-capacity septic systems and storm water drainage systems. Most Class V wells are “by rule”. “By rule” means that an injection well may be operated without a permit as long as the owners or operators:

1. Submit inventory information to KDHE
2. Operate the well in a way that does not endanger drinking water.
3. Properly close their Class V well when it is no longer being used.

	By Rule Inventory	Authorization	Permit
Depth of Injection	Shallow	Shallow	Shallow or Deep injection
Frequency of Injection	On-going	One Time	On-going
Examples	Large Capacity Septic Systems, Groundwater Return Flow, Storm-water Drainage	Injection of remedial compound or operation of air sparging well in conjunction with a groundwater remediation project	Aquifer storage & Recovery wells, Geothermal Electric Power Wells
Example of Application	http://www.kdheks.gov/uic/download/CVWells.pdf	http://www.kdheks.gov/uic/download/Remedial-Compound-Injection-Form-6-13-2012.pdf	http://www.kdheks.gov/uic/download/Class V Injection Well Application 2012.pdf

The KDHE Geology and Well Technology website has a wealth of information about all aspects of the UIC program, including Class V forms and procedures documents. Check out [www.kdheks.gov/uic/Class 5](http://www.kdheks.gov/uic/Class_5) to learn more about what is required.

Sue and Steve Funk take a Trip to Sedona and the Grand Canyon

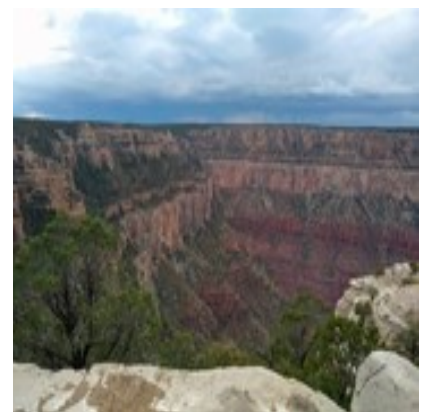
Sedonia Trail



Sue and Steve



Grand Canyon



Water Well Program Opportunities for CEUs

by Pam Chaffee, PG

Several Kansas licensed water well contractors took advantage of obtaining up to eight (8) continuing education units (CEUs) at events in September and October: at the Kansas Ground Water Association (KGWA) Fall Seminar, and at the Geology & Well Technology Unit (GWTU) Fall Seminar/Tech Fair, respectively. Upcoming CEU opportunities required for license renewal are detailed below. CEUs must be processed through the KGWA. Information is available on their website at <https://kgwa.org/>. Contact Dale Hayse, KGWA Executive Director, at Hayse Management Services, P.O. Box 107, Mullinville, KS, 67109, at ksgroundwater@gmail.com, or at 620-548-2669.

November 7-8, 2019

- ♦ The annual **Governor's Conference on the Future of Water in Kansas** will be held November 7-8, 2019 at the Hyatt Regency in Wichita, KS. Details are available at: <https://www.kwo.ks.gov/news-events/governor-s-water-conference>.

November 22, 2019

- ♦ The **28th Annual Kansas Hydrology Seminar**, sponsored by the Association of Environmental & Engineering Geologists (AEG) – KC-Omaha Section and American Institute of Hydrology (AIH) Kansas Section, will be held Nov. 22, 2019, at the Kansas History Museum in Topeka, KS.

December 3-5, 2019

- ♦ The **National Groundwater Association (NGWA) Groundwater Week** will be held Dec. 3-5, 2019, at the Las Vegas Convention Center in Las Vegas, NV. Details are available at: <https://groundwaterweek.com/>.

January 23-24, 2020

- ♦ The **2020 KGWA Convention and Trade Show** will be held on January 23-24, 2020 at the Kanas Star Event Center in Mulvane, KS. Industry and

Regulatory topics will be presented. Event details will be posted on the KGWA website. A review and the Kansas Water Well Contractor's Licensure Examination will be conducted Wed. January 22nd. Some CEUs are awarded if a person sits through the exam review. Contact Pam Chaffee at 785-296-3565 or Pam.Chaffee@ks.gov to obtain the current licensure exam study guide and to register for the review/exam on January 22nd.

- ♦ **National Groundwater Association (NGWA)** regularly provides updates on upcoming groundwater events and education opportunities. Visit the following link on their website:

<https://www.ngwa.org/events-and-education/ngwa's-event-calendar>

- ♦ **NGWA's WellOwner.org** website lists lessons & webinars at: <http://wellowner.org/well-owner-lessons/>.

- ♦ **The Private Well Class** - Upcoming and recently recorded webinars are available at: <http://privatewellclass.org/calendar>.

- ♦ Links to information on surrounding state groundwater association activities include:

Oklahoma: <https://okgroundwater.org/events>;

Colorado: <https://www.cgwa.co/events>;

Nebraska: <https://www.nebraskawelldrillers.org/>;
and

Missouri: <http://www.missouriwaterwellassociation.com/>.

Water Well Testing

KDHE Certified Laboratories Listing can be found at the following website:
<http://www.kdheks.gov/envlab/disclaimer.html>



**KDHE OFFICES WILL BE CLOSED ON THE
FOLLOWING DAYS...**

November 11	Veterans Day
November 28-29	Thanksgiving
December 24-25	Christmas
January 1, 2020	New Years Day

2019



**THANK YOU
VETERANS**



Web News

The following changes have recently
been made to the Geology and Well
Technology Section Web site:

Geology (<http://kdheks.gov/geo>)

Updated Index Page
Updated Organizational Chart
Put Seminar Presentations online

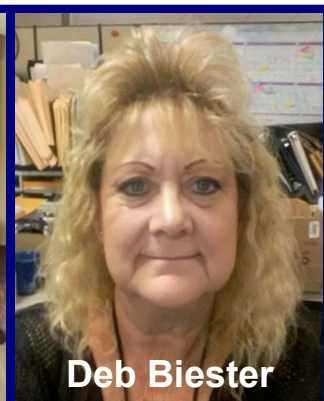
UHS (<http://kdheks.gov/uhs>)
Updated Index Page

UIC (<http://kdheks.gov/uic>)
Updated Index Page

Water Well (<http://kdheks.gov/waterwell>)
Updated Index Page
WWC-1 Application for WW Contractor License
WWC-1R Renewal Application for Kansas Water
Well Contractor License
Plugging Abandoned Wells Brochure



Carrie Ridley



Deb Biester



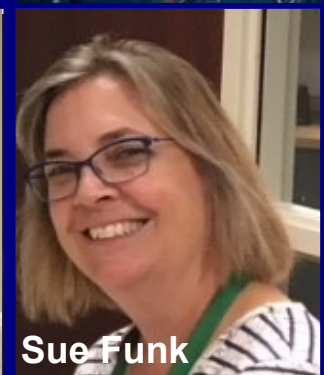
Pam Chaffee



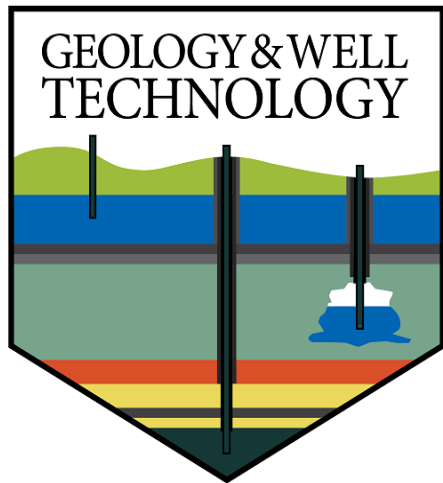
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MEMBER:



Web:
<http://kdheks.gov/geo>



***KDHE's Mission is to Protect and Improve the
Health and Environment of all Kansans***